



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Battle Creek, MI	<b>Accident Number:</b>	CHI07FA016
<b>Date &amp; Time:</b>	11/02/2006, 1354 EST	<b>Registration:</b>	N9408B
<b>Aircraft:</b>	Cessna 175	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

Air traffic controllers received an emergency radio call from a person representing the airplane. The pilot responded that oil was on the airplane's windshield and that oil pressure was zero. The airplane was given a heading to divert to the closest airport. The pilot was asked if he could maintain altitude and he responded "no." The pilot advised that he was going to land in a field. Air traffic controllers alerted crash, fire, and rescue personnel of the airplane's location. The airplane was found near the top of a crest in rolling pastureland about eight miles northeast of the diversion airport. The empennage was streaked with a liquid consistent with oil. The windshield was broken and pieces of it were coated with a liquid consistent with oil. An on-scene examination of the wreckage revealed no airframe pre-impact anomalies. The top right side of the engine, aft facing forward, was coated with a liquid consistent with oil. The engine case and cylinders showed no pre-impact anomalies that would have precluded engine operation. The top of the separated reduction gear case was coated with a liquid consistent with oil. Disassembly showed that the upper right section of the nose seal assembly, which sealed against the reduction gear case, exhibited an area coated with a liquid consistent with oil. The remainder of the seal was intact and was not coated with liquid. The airplane did not have shoulder harnesses installed and was not required to have them installed. Advisory Circular 91-65, Use of Shoulder Harness in Passenger Seats, in part, stated, "The [National Transportation Safety Board] concluded that shoulder harness use is the most effective way of reducing fatalities and serious injuries in general aviation accidents."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power while in cruise flight due to an oil leak from the nose seal of the reduction gear case. Contributing to the accident were the oil leak, the pilot's reduced visibility out the windscreen, and rising terrain.

## Findings

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: CRUISE

### Findings

1. (C) LUBRICATING SYSTEM,OIL SEAL - LEAK
2. (F) FLUID,OIL - LEAK

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Occurrence #2: FORCED LANDING  
Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

3. (F) VISUAL LOOKOUT - RESTRICTED - PILOT IN COMMAND

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

4. (F) TERRAIN CONDITION - RISING

## Factual Information

### HISTORY OF FLIGHT

On November 2, 2006, about 1354 eastern standard time, a Cessna 175, N9408B, piloted by a commercial pilot, sustained substantial damage on impact with terrain during a forced landing following a reported loss of oil pressure during cruise near Battle Creek, Michigan. The personal flight was operating under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident. No flight plan was on file. The pilot sustained fatal injuries. The flight originated from the Huron County Memorial Airport (BAX), near Bad Axe, Michigan, about 1130, and was destined for an airport in the Chicago, Illinois, area.

About 1351, Federal Aviation Administration (FAA) air traffic controllers near Kalamazoo, Michigan received an emergency radio call on the emergency frequency from a person representing call sign N9408B. The controllers contacted N9408B and the pilot responded back that oil was on the airplane's windshield and that oil pressure was zero. The airplane was given a heading for the W. K. Kellogg Airport (BTL), near Battle Creek, Michigan. The pilot was asked if he could maintain altitude and he responded "no." The pilot advised that he was going to land in a field. Air traffic controllers alerted crash, fire, and rescue personnel of the airplane's location. About 1354, another airplane overhead reported that they picked up a signal from an emergency locator transmitter (ELT).

### PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with a lighter-than-air free balloon rating and he held private pilot airplane single-engine land privileges with an instrument airplane rating. He held a third-class medical certificate, which was issued on April 6, 2006. The medical certificate listed no limitations.

The pilot's logbooks found at the accident site showed that he had accumulated about 1,500 hours total flight time and about 702 hours of single-engine flight time. An endorsement in that logbook showed the pilot completed a flight review on July 22, 2005.

### AIRCRAFT INFORMATION

N9408B, a 1957 Cessna 175, Skylark, serial number 55208, was an externally braced high-wing, propeller-driven, fixed landing gear, semi-monocoque design, four-seat airplane. A 175-horsepower, geared, six-cylinder, air cooled, horizontally opposed, carbureted, Continental GO-300-D, serial number 23002-2-D-R, engine, powered the airplane. The propeller was a two-bladed, all-metal, fixed pitch, McCauley model 1B175/MFC8467, with serial number P71274. The airplane had a certified maximum takeoff weight of 2,350 lbs.

The airplane's logbooks showed that an annual inspection was completed on June 13, 2006. The airplane had accumulated 4,297.5 of total time at the date of the inspection.

Records indicated the airplane was refueled with 27.8 gallons of 100 low lead aviation fuel at BAX on October 30, 2006. The person who fueled the airplane reported that this amount of fuel filled up the fuel tanks.

## METEOROLOGICAL INFORMATION

At 1353, the recorded weather at BTL was: Wind 260 degrees at 16 knots; visibility 10 statute miles; sky condition scattered 1,600 feet, scattered 3,000 feet, broken 4,700 feet; temperature -1 degree C; dew point -4 degrees C; altimeter 30.16 inches of mercury.

At 1358, the recorded weather at BTL was: Wind 280 degrees at 16 knots; visibility 2 1/2 statute miles with light snow; sky condition scattered 1,600 feet, broken 2,800 feet, broken 4,200 feet; temperature -1 degree C; dew point - 4 degrees C; altimeter 30.16 inches of mercury; remarks snow began 1357.

At 1400, the recorded weather at BTL was: Wind 280 at 13 knots; visibility 3/4 statute mile with light snow; sky condition few clouds 100 feet, broken 2,700 feet, overcast 8,000; temperature -1 degree C; dew point -3 degrees C; altimeter 30.17 inches of mercury; remarks snow began at 1357.

## WRECKAGE AND IMPACT INFORMATION

The airplane was found near the top of a crest in rolling pastureland about eight miles northeast of BTL. The airplane wreckage was found without the aid of the ELT and Civil Air Patrol members turned off the activated ELT. The airplane fuselage was inverted and the empennage had separated from it at the joint aft of the rear side windows. The separated empennage was resting upright on the fuselage. A ground scar was found. The scar started about 38 feet south of the wreckage and ended at the front of the engine cowling. The nose landing gear was found about nine feet from the engine cowling. The propeller and reduction gear case separated from the engine case. The propeller and reduction gear case was found about two feet from the engine cowling. The empennage was streaked with a liquid consistent with oil. The windshield was broken and pieces of it were coated with a liquid consistent with oil.

An on-scene examination of the wreckage was conducted. Flight control cables were continuous from each flight control to each flight control surface. Flight control continuity was established. Engine controls were continuous from each control to their respective engine component and engine control continuity was established. The carburetor was separated from the engine case. A liquid consistent with aviation gasoline (avgas) was found in the carburetor bowl. The carburetor fuel finger screen was clean. The liquid from the carburetor was tested for the presence of water and water was not detected in that liquid. An elbow fitting to the gascolator was separated and the gascolator did not contain any liquid. The top structure of the gascolator on the side with the fuel line intact to it did contain a liquid consistent with avgas. About 15 gallons of liquid consistent with avgas were recovered from the wing tanks. The engine driven vacuum pump was removed and it produced suction when rotated by hand. The engine rotated when battery power was applied to the starter. A thumb compression was observed at all cylinders except the number four cylinder. The number four cylinder rocker cover was removed and the exhaust valve was seized in the open position. Both magnetos produced spark. The top right side of the engine, aft facing forward, was coated with a liquid consistent with oil. The oil cooler, mounted on the right front portion of the engine case, was compromised. A liquid consistent with oil was exiting from the breach on the front and aft side of the cooler.

## MEDICAL AND PATHOLOGICAL INFORMATION

The Calhoun County Coroner's Office coordinated the pilot's autopsy. The autopsy was conducted on November 3, 2006.

The FAA Civil Aerospace Medical Institute prepared a Final Forensic Toxicology Accident Report. The report was negative for the tests performed.

## SURVIVAL ASPECTS

An unrestrained airplane battery was found in the wreckage. The unrestrained battery was in addition to the airplane battery secured in the aft fuselage. The unrestrained battery was found resting next to the pilot.

The 1957 Cessna 175 did not have shoulder harnesses installed and was not required to have them installed at the time it was certified.

## TESTS AND RESEARCH

The engine was shipped to its manufacturer, Teledyne Continental Motors, Inc. (TCM), in Mobile, Alabama, for a disassembly examination on March 12, 2006. Examination of the oil cooler revealed that the breaches were in the areas where cross supports had separated. The cooler was filled with liquid to look for other leaks. No other leaks were observed than from the breaches under the supports. The supports were sectioned and microscopic examination revealed the support separations were consistent with overload.

The number four exhaust valve did not exhibit any heat distress and it was not seized when the case and cylinders were examined. The engine case disassembly revealed no heat distress to the bearings. The engine case and cylinders showed no pre-impact anomalies that would have precluded engine operation.

The top of the separated reduction gear case was coated with a liquid consistent with oil. The case was disassembled. The upper right section of the nose seal assembly, which sealed against the case, exhibited an area coated with a liquid consistent with oil. The remainder of the seal was intact and was not coated with liquid.

## ADDITIONAL DATA/INFORMATION

Advisory Circular 91-65, Use of Shoulder Harness in Passenger Seats, in part, stated:

The [National Transportation Safety Board] found that 20 percent of the fatally injured occupants in these accidents could have survived with shoulder harnesses (assuming the seat belt fastened) and 88 percent of the seriously injured could have had significantly less severe injuries with the use of shoulder harnesses. Energy absorbing seats could have benefited 34 percent of the seriously injured. The

safety board concluded that shoulder harness use is the most effective way of reducing fatalities and serious injuries in general aviation accidents.

The parties to the investigation included the FAA, Cessna Aircraft Company, and TCM. The aircraft wreckage was released to a representative of the insurance company.

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	48, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Balloon	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Without Waivers/Limitations	<b>Last FAA Medical Exam:</b>	04/01/2006
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	07/01/2005
<b>Flight Time:</b>	1500 hours (Total, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N9408B
<b>Model/Series:</b>	175	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	55208
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	06/01/2006, Annual	<b>Certified Max Gross Wt.:</b>	2350 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	4297.5 Hours as of last inspection	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	GO-300-D
<b>Registered Owner:</b>	Peter C. Fay	<b>Rated Power:</b>	175 hp
<b>Operator:</b>	Peter C. Fay	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	BTL, 952 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	1353 EST	Direction from Accident Site:	45°
Lowest Cloud Condition:	Scattered / 1600 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 4700 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	16 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.16 inches Hg	Temperature/Dew Point:	-1° C / -4° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BAD AXE, MI (BAX)	Type of Flight Plan Filed:	None
Destination:	Chicago, IL	Type of Clearance:	None
Departure Time:	1130 EST	Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	42.413889, -85.127222

## Administrative Information

Investigator In Charge (IIC):	Edward F Malinowski	Report Date:	04/30/2008
Additional Participating Persons:	John A Beeby; Federal Aviation Administration; Grand Rapids, MI Jason Lukasik; Teledyne Continental Motors, Inc.; Mobile, AL Tom Moody; Cessna Aircraft Company; Wichita, KS		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).